APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 191650 CST 2:07 74/1

PAO This is Apollo Control, Houston, 19 hours, 16 minutes, 50 seconds now into the flight of Apollo 8. Apollo 8 at the present time 85,600 and 85 nautical miles above the earth. Current velocity reading 6,030 feet per second. We have a short strip of conversation with spacecraft commander Frank Borman. We'll play for you now.

CAPCOM Apollo 8, Houston, GO.

SC Give me a call will you when it is time to quit charging the battery. I can't watch it very well over there.

CAPCOM Wilco.

SC And start with the band up.

CAPCOM Roger, copy.

SC Hydrogen 1 first.

CAPCOM Roger.

SC Okay, Houston, we back up through the path...battery charges.

CAPCOM Roger. Apollo 8, Houston, the battery charges have been completed around 21 hours.

SC Okay, just give me a call.

CAPCOM Okay.

PAO That's it. We expect - spacecraft commander Borman is presently having breakfast. We should be hearing from him again before too awfully long with a report a crew status report. At 19 hours, 18 minutes, 34 seconds into the flight this is Apollo Control, Houston.

END OF TAPE

A/8, MC, 12/22/68, 194140, 2:31 a.m., 75/1

PAO This is Apollo control Houston, 19 hours 41 minutes, 40 seconds now into the flight of Apollo 8. We now read an altitude on Apollo 8 of 87 thousand 109.9 nautical miles. Our current velocity on spacecraft Apollo 8 59 hundred and 62.8 feet per second. Spacecraft commander Frank Borman has delivered a short status report to capsule communicator Jerry Carr and we'll pass that along now.

CAP COM Apollo 8 Houston go ahead.

SC Roger Houston. Your status report here We're behind on water and food and we don't seem to have too much of an appetite. We're trying to stay up with the water but the food is, not to say anything is wrong with the food but we're just not very hungry.

CAP COM Roger, understand, Frank.

SC CDR at 5 hours of midcourse sleep and rest and the other two people are trying to sleep now.

PAO That's the end of the conversation. Commander Borman indicated that he received or took advantage of about 5 hours of sleep and his fellow crew members are trying to sleep now. And you can readily appreciate an absence of appetite since these are the first three gentlemen to have been 87 thousand 201 nautical miles above the earth. At 19 hours 43 minutes 30 seconds this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 21018, CST 3:09 76/1

PAO This is Apollo Control, Houston, 20 hours, 10 minutes, 18 seconds now into the flight of Apollo 8. Apollo 8 now 88,735.6 nautical miles in altitude. Its current velocity 5886.8 feet per second. We had no conversation with Apollo 8 since our last announcement. But this is understandable to quickly recap our status. Commander - spacecraft commander, Frank Borman is currently awake. The other two crew members, Jim Lovell and Bill Anders are in their sleep period. There are no scheduled events for the flight plan with the ground at least for a period of time. And at 20 hours, 11 minutes, 15 seconds, this is Apollo Control, Houston.

END OF TAPE

A/8, MC, 12/22/68, 204100, 3:32 a.m., 77/1

PAO Apollo control Houston. 20 hours 41 minutes now into the flight of Apollo 8. The Apollo 8 spacecraft now 90 thousand 4 hundred 65.nautical miles in altitude Our current velocity 58 hundred and 7.8 feet per second. We've had no conversation since our last anouncement with spacecraft commander Frank Borman. We've had no requirement for conversations so we have not bothered him. At 20 hours 41 minutes 45 seconds into the flight all systems continued to look GO. This is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY,12/22/68,GET 210100,CST 352 78/1

PAO This is Apollo Control Houston, 21 hours one minute now into the flight Apollo 8. Apollo 8 now at 91 576 nautical miles in altitude, now a velocity of 5758.1 feet per second. We've had a brief contact with the crew or with Commander Frank Borman I should say and passed on some procedural information, let's pick up that conversation.

CAP COM Apollo 8, Houston.

SC Go ahead Houston, Apollo 8.

CAP COM Apollo 8, this is Houston at 21 hours we'd like you to terminate the battery B charge and start battery A charge and then begin an 02 purge. Over.

SC Roger, understand. Terminate battery B, start battery A and an 02 purge.

CAP COM Roger, 02 fuel cell purge.

SC Thank you. Charging battery A and say again about the purge.

CAP COM Apollo 8, Houston, roger. Copy your battery charge setup, now begin a fuel cell 02 purge. Over.

SC Fuel cell 02 purge. Roger.

PAO That was the conversation between the capsule communicator Jerry Carr and spacecraft commander Frank Borman otherwise very quiet here in Mission Control Center at 21 hours 2 minutes 48 seconds into the Apollo 8 mission. This is Apollo Control Houston.

END OF TAPE

PAO This is Apollo Control Houston. 21 hours and 19 minutes and 39 seconds into the flight of Apollo 8. The Apollo 8 spacecraft at the present time is 92,600 nautical miles altitude. Our velocity display shows 57 hundred and 12 point 9 feet per second. Speed of 57.9 - 5712.9 feet per second. Cap Comm, Jerry Carr, has described to spacecraft commander, Frank Borman, what his trajectory - what the Apollo 8 trajectory looks like and we will pass along that conversation.

SC Houston. Fuel cells are all purged.

CAP COM Roger. Frank.

SC How's the tracking coming, Jerry? Houston? Apollo 8.

CAP COM Apollo 8. Houston.

SC How's the tracking looking?

CAP COM It's looking good Frank. We just took in another batch of data and we are processing it. It looks initially like we won't even need a midcourse number two. As soon as we process this data, we will have some confirmation for you. It should take anywhere from 15 to 30 minutes to finish the job.

SC Thank you.

CAP COM Apollo 8, Houston.

SC Go ahead.

CAP COM Apollo 8. This is Houston, we are showing your pericynthian 64 nautical miles. Your next midcourse at 28 will be less than 1 foot per second. We will have a firm confirmation on that in about 2 hours.

PAO As you heard, the present track appears quite good. The point of closest approach to the moon predicted 64 nautical miles. And this consideration of the midcourse correction, the midcourse correction, if one were made for MCC two, at least at this point in time appears to be one of less than a foot per second. Therefore, it appears unlikely that we will do a second midcourse, but the flight dynamics officer here in Mission Control will continue to look over the data for a couple more hours before we make such a decision. At 21 hours 22 minutes 18 seconds into the flight of Apollo 8, this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY,12/22/68,GET 215144,CST 444a 80/1

PAO This is Apollo Control Houston, 21 hours 51 minutes 44 seconds now into the flight Apollo 8. Apollo 8 now showing a velocity of 5637.5 feet per second. Its current altitude 94 351 nautical miles. Members of the Green Team of flight controllers are now being briefed in the Mission Operations Control Room by their Black Team counterparts, we're due for a change of shift here shortly. There will be no change of shift news briefing with the Black Team. We repeat, there will be no change of shift news briefing with the Black Team. And during this past 30 minutes or so we've had no conversations with the spacecraft commander Frank Borman. At 21 hours 52 minutes and 50 seconds into the flight of Apollo 8, this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/22/68, GET 222728, CST 5:20 A 81/1

PAO This is Apollo Control, Houston, 22 hours, 27 minutes, 28 seconds now into the flight of Apollo 8. The Apollo 8 spacecraft up to now 96,265 nautical miles in altitude. Its velocity reading at this time 5556 feet per second, 5556 feet per second. Again as has been characteristic - during this shift we've had no conversation with spacecraft commander Frank Borman since our last report. Meanwhile in our Mission Control Center, Cliff Charlesworth's team of flight controllers have taken over. And they're going to - Flight Director Cliff Charlesworth is now going around the room discussing - various aspects of the mission with each of his key flight controllers. During the black team change - black team shift we found Colonel Borman asleep for a good segment of that period. And he reported approximately 5 hours of sleep and then at about 18 hours, 40 minutes GET astronauts Bill Anders and Jim Lovell had their first opportunity to - relax since awakening at 2:36 Eastern Standard time Saturday morning. Otherwise, all systems appear to be functioning quite smoothly. And at 22 hours and 29 minutes, 48 seconds, this is Apollo Control, Houston.

END OF TAPE

A/8, MC, 12/22/68, 225048, 5:41 a.m., 82/1

PAO This is Apollo control Houston. 22 hours 50 minutes 48 seconds now into the flight of Apollo 8. The Apollo 8 spacecraft at this time 97 thousand 513 nautical miles in altitude. Its present velocity reads 5504.2 feet per second. We have, a short while ago broke our communications silence with spacecraft commander Borman He called down and asked a question. Lets play that for you.

SC Houston. Apollo 8

CAP COM Apollo 8, Houston. Go ahead.

SC How'd you read?

CAP COM Yeah, read you loud and clear Frank. Good morning, how are you doing?

SC Just fine. We just broke lock for a minute and I wondered why.

CAP COM Apollo 8 Houston.

SC Go ahead.

CAP COM Roger. Your break lock is due to the fact we switched antennas over from Honeysuckle to Madrid.

SC Roger. Thank you.

PAO That crisp and chipper voice from the ground was Mike Collins who has taken over the capsule communicator's role here in mission control center. Meanwhile at 22 hours 52 minutes 28 seconds into the flight of Apollo 8 we're looking good and this is Apollo control Houston.

END OF TAPE

PAO Apollo Control here at 23 hours 10 minutes into the flight. And on behalf of the Green Team, good morning. We have had a shift change in the Control Center. And our capsule communicator, Mike Collins, is about to engage Frank Borman in a conversation in which he will cover, among other things, the fact that based on the tracking of the last 12 hours, we see only a need for another midcourse on the order of .7 feet per second. Which is too small - within our ground rules to bother with. And that is the position we will take. Don't really expect the crew would have a different view. All the other data sources, all the data looks quite consistent with flight plans and hopes to this point - we've had a relatively quiet period over the last few hours. Very little communication with this crew. Here goes the first call. Let's listen.

SC Go ahead Houston. Apollo 8.

CAP COM Roger. Frank. We would like to bring you up to date on your trajectory. This midcourse coming up at 28 hours GET turns out to be very small, .7 feet per second. And we would like not to do it, but our data is looking extremely good and extrapolating forward, it shows the midcourse number 4 at LOI minus 8 hours would be about 4 feet per second. In the meantime the free return trajectory has it looking very good with a water splash point off the coast of Africa. So it looks like you are right down the old [illegible] line and we propose not to do the next midcourse. Over.

SC Fine with us.

CAP COM Okay. And in regard to your timeline here. We suggest that you let Bill and Jim sleep for an extra period of time and don't wake them up until 2630 GET. And that would cause deletion of P52 and P23 at 26 hours GET. Over.

SC Roger. Understand. Delete P52 and P23.

CAP COM Affirmative. Delete those at 26 hours, wake the other two guys up at 2630 at which time they can eat and then chlorinate the water supply after they have eaten.

SC Roger.

CAP COM That would put us back on nominal flight plan at 28 hours GET. Over.

SC Roger.

CAP COM How does all that grab you?

SC Fine.

CAP COM Okay.

PAO Apollo Control here. That apparently wraps up the conversation with this opening shift period this morning. We're - one other item of interest. We are rapidly nearing the 100,000 mile point presently. 98,891. And we will certainly note the passage of the 100,000 mile mark the big yellow line extending on our earth/moon map system is now roughly half way to its target. A small little white dot off in the far right, which is out at the 210,000 mark. For our mapping purposes. And all in all, that's our status at 23 hours 17 minutes into the flight.

END OF TAPE

PAO This is Apollo Control Houston. 23 hours 48 minutes into the flight. Mike Collins has been chatting with Frank Borman about this net for the past few minutes and here is how that conversation is going.

CAP COM Apollo 8. Houston. Over.

SC Go ahead Houston.

CAP COM Roger. We are switching the antennas again at 2340 GET. You can expect a momentary break lock and also we would like to bring you up to date on the passive thermal control. We expect to keep the same PTC attitude until 28 hours GET. Over.

SC Fine, thank you. How is the thermal control working?

CAP COM Looking good Frank. I can give you some details if you want it.

SC Go ahead. I am all ears, Houston. Go ahead with the details.

CAP COM Okay. Stand by one until we switch antennas, Frank. We will be right with you.

SC Roger.

CAP COM Apollo 8. Houston. Over.

SC Go ahead.

CAP COM On your PPC quads A, C, and D seems to be just about idential. Quad B is running quietly cooler but only very slightly so. The temperature readout in all respects are normal. Apparently the PPC is working well from a thermal viewpoint and as far as the fuel consumption goes, it is minimal. Just about like we expected. Have you got any comments about PPC? How does it seem to you?

SC It's fine. Seems to be working all right. I just wondered how the readouts from the SPS were to.

CAP COM Apollo 8. Houston. The SPS temperature is normal. If anything, it is slightly warmer than we expected. So, you are in real good shape in that respect.

SC Thank you.

CAP COM Frank, the PU valve temperature is running about 72 degrees, which is better control that we got here in this room.

SC Roger.

CAP COM Apollo 8. Houston. Over.

SC Go ahead Houston. Apollo 8.

CAP COM Roger, it is time to do a cryo fan cycle, Frank, on all four fans, a short burst from each of them as you did before.

SC Understand, 2 minutes each on all cryo fans.

CAP COM Right.

PAO Apollo Control here. Apparently Borman - Lovell, and Anders are sleeping quite soundly. We can almost detect that Frank Borman is keeping his voice in a low measured tone to avoid rousing them. We have suggested that their sleep period be extended as much as an hour - hour and a half. They were up nearly 24 hours, in fact, probably every bit of 24 hours due to the fact that they were roused about 2:30 yesterday morning Cape time and they went to sleep, oh, about 6 hours ago. It sort of made for a long day and apparently had no trouble sacking out. We have passed the 100,000 mile mark. We are now 100,738 miles from earth. This is Apollo Control Houston.END OF TAPE

SC	...Houston.
CAPCOM	Apollo 8, Houston, go ahead.
SC	There's a...cycle.
CAPCOM	Okay, thank you then.

END OF TAPE

A/8, MC, 12/22/68, 241500, 7:06 a.m., 86/1

PAO Apollo control Houston here. 24 hours 15 minutes into the flight and since we last tallked to you the only contact we've had from the crew is a brief confirmation from Frank Borman that the cryo fans had indead been cycled, as discussed about an hour ago. We're a hundred and two thousand miles from the earth and all is well. This is Apollo control Houston.

END OF TAPE

CAPCOM Apollo 8, Houston, over.
SC Go ahead Houston, Apollo 8.
CAPCOM Ah, just a COMM check Frank, do you read me alright?
SC Loud and clear.
CAPCOM Same here.
SC Thank you.

END OF TAPE

CAP COM And this is Apollo Control, Houston, 24 hours, 37 minutes into the flight. We have had one establishing call since we last talked to you 20 minutes ago and it was nothing more than an establishing call. We're 103,000 miles from earth at this point, and let's cycle through some of our consumables and other items this morning and we'll just look at them on our monitor and tell you what we see. The first chart we come to, and this is data, live data coming to us via Madrid. The bio-medical harness is well, a moment ago it was on Frank Borman but apparently it's been switched off now. We do know from this readout that the cabin pressure is an even five pounds and the cabin temperature is 62 degrees. Let's try another chart. We are looking at our radiation chart now, let's first get the time of it. The current reading, and it looks to me very much like there's no observable change, it breaks out from yesterday. It does break out the proton, the various classes of protons, and also three classes of alpha radiation. And for each of those classes, gives an interpretative flux. Total, and all this comes down to the lower count is in the proton area, a dep dose of point 11 rems, rems or, then that is further reduced or rated with the alpha readings, and we wind up with a dep dose of point 03, a skin dose of point 02. That's the entire cumulative total to this time, which is essentially negligible. Now we come to our command module service module RCS summaries, and they follow the exact curve, the usage curve that we plot in our press kits and in our flight plan. Our environment control system tabulation, well let's see, again a confirmation of the cabin pressure, five pounds, and we see a reading of 47 pounds per square inch in the glycol pumping area. The environmental control system radiator temperature is 72.8 degrees. In all, this looks quite normal. And here's the bio-medical comparative data, and this would be the command pilot just before the switch was switched off here only moments ago, Frank Borman's mean heart rate, 74, high of 77, a low of 71, and respiration is running about 15 per minute. That seems to cover the consumable priority for us, we'll later get a quantity reading on our remaining onboard propellant, that chart is not available to us right now. Our velocity now is down to 5,274 feet per second. Now we have got a call from the spacecraft, let's bring it up.

SC How've you been reading our tape dumps?

CAP COM Stand by one, Frank, we know that you've got your PPC attitude freaked up a bit, and I'll check on your tape dump.

CAP COM Apollo 8, Houston, the quality of the tape dumps has been very good. We have about 15 minutes

to dump, which we will do any time we get high gain.

SC How's the voice quality been?

CAP COM It's been very good, Frank.

SC Okay. We'll send you something new here shortly.

CAP COM And apparently that concludes the conversation with the crew at this time. This is Apollo Control at 24 hours, 45 minutes.

END OF TAPE

to 181

PAO This is Apollo Control Houston at 24 hours and 59 minutes into the mission. Within the last few minutes, we've heard from Jim Lovell and Bill Anders. Jim Lovell sounds the sleepiest of the group and over a 140,000 mile of intervening space. Here's the conversation as it has progressed.

CAPCOM Apollo 8, Houston. Over.

SC Roger, Houston.

CAPCOM Frank, on this tape recorder, we have the tape motion stopped right now. If you would like to record some, we will give you the tape in motion so that you may do so. Is that what you would like? Over.

SC Roger. Houston, why don't you just give us salvo so we can control the switches here.

CAPCOM Okay, stand by.

SC - PCM low and stop.

CAPCOM You should have it now. Over.

SC Roger.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston. Over.

SC Houston, Apollo 8. Over.

CAPCOM Apollo 8, this is Houston. Over.

SC Roger. Are you capable of taking a high bit FM dump for voice on the omnis?

CAPCOM That is negative, Bill. Not quite on the omnis.

SC Okay. We will catch you next time around, then.

CAPCOM Roger, thank you.

SC Good morning, Mike. How are things going down there?

CAPCOM Hi, Jim. Things are going real fine. How are you doing up there? Did you get a good night's sleep?

SC Oh, you know. The first night in space all the time -

CAPCOM The old man woke you up earlier than he needed to.

SC Well, we just couldn't sleep any longer.

CAPCOM Roger, understand.

CAPCOM Apollo 8, Houston. The next time you are locked on the high gain, give us a call and we will configure for a dump. Over.

SC Roger. We would like an evaluation of the voice comments. Over.

CAPCOM Roger, understand. So far, it's been very good. We will evaluate this one as soon as we can.

SC How are the systems looking down there, Houston?

CAPCOM Apollo 8, Houston. Go ahead.

SC Roger. I asked how the systems looked

CAPCOM Everything is looking real good, Bill.

SC Okay.

SC How much longer do you expect on charge on battery A?

CAPCOM Stand by, Bill. We will get you an exact number on it.

SC Just a rough estimate. And also, have you seen any more on that sensor problem on fuel cell 2?

CAPCOM Stand by one. I'll get the latest scoop on it for you. Bill, there is nothing new on fuel cell number 2. We don't think there is anything at all wrong with the fuel cell. It's some sort of a sensor problem, but we don't have any new information on it.

SC Okay. They all look pretty good from here, Mike.

CAPCOM Roger. Thank you. I've got some updates for you whenever you are ready to copy.

SC Stand by.

CAPCOM Okay.

SC What kind?

CAPCOM Well, I've got a TLI + 35 hour update, and then I have an update to Jim's checklist.

SC Let's have the TLI + 30 before we get the checklist update.

SC They never give up on the checklist, do they?

CAPCOM Okay. This - when you get your maneuver pad book, the last maneuver pad we gave you for the flyby pad still remains valid. We would just like to remark that the entry angle, the gamma, is slightly steeper than we consider ideal, but it's within our - sort of our noise level of our ability to predict at this time. So that flyby maneuver pad remains valid. Over.

SC Roger, Houston

CAPCOM Okay. Now on that page with the flyby maneuver under your north set of stars, I have some new numbers for you, because we've changed those stars from Navi and Polaris. As you recall, we changed to Sirius and Rigel, so - and that also, by the way, is the checklist update which I will give you later. But on that maneuver pad, I have got three new angles for you, using Sirius and Rigel when you are ready to copy those.

CAPCOM Apollo 8, Houston. How do you read? Over.

CAPCOM Apollo 8, Houston. Over.

SC Houston, Apollo 8. Over.

CAPCOM Roger, Apollo 8, Houston. You are loud and clear now. We had a lot of background for a few minutes. How are you reading me?

SC Roger. I'm reading you okay, Mike and I read you the last time you asked me that, so I guess maybe I wasn't getting through to you.

CAPCOM Okay. Well, did you copy on this flyby maneuver pad? We've got three new angles. Are you ready to copy those?

SC I'm ready to copy the flyby angles.

CAPCOM Okay. Roll 137, pitch 310, yaw 340. Over.

SC Roger. Roll 137, pitch 310, yaw 340.

CAPCOM That's affirmative. I have the TLI + 35 hour pad when you are ready for it.

SC Roger. Ready for the TLI + 35.

CAPCOM Roger. TLI + 35 hours, SPS slash G&N, 63023 - 162 + 129. Are you with me so far?

SC Loud and clear.

CAPCOM Good. 037565138 + 00068 + 00000 + 46420 178134001, not applicable, + 00202464205474621l. Are you with me? Over.

SC Roger, loud and clear.

CAPCOM Good. 121383327023 up 172 left 22 + 1293 - 1650012905361 --

END OF TAPE

CAPCOM 1290536180 074 11 16. Comments: on your stars Sirius and Rigel, roll 010, pitch 294, yaw 320. No ullage. Other, 1. Sat return P37, DELTA-V equals 7821. For Mid-Pacific landing for MTL: 2. High Speed procedures not required. Over.

SC Alright. Are you ready for the read back?

CAPCOM All set.

SC TLI plus 35 SPS G&N 63023 minus 162 plus 129 037 56 5138 plus 00068 plus 00000 plus 46420 178 134 000 NA. Are you with me?

CAPCOM Yes, I'm with you, Bill. That last one should be 001.

SC Roger. Y, 001 NA plus 00202 46420 547 46211 12 1383 327 023 Up 172 left 22 plus 1293 minus 16500 plus 12905 plus 36180 0741116. Sirius, Rigel. 010 204 320 no ullage, fast return P37 7821. Mid Pac. High speed not required. Over.

CAPCOM That's about the size of it. You're getting pretty good at this thing, Bill, for a rookie.

SC Not bad. I just learned to read about a year ago.

CAPCOM Well, say, I've got a flight plan update for Jim. It's on page G George, 82 Able of this check list Over.

SC Roger, I've got it open. Go ahead, Mike.

CAPCOM Okay, it's simply changing these north set of stars around. For Navi substitute Sirius, which is number 15, and for Rigel - correction - for Polaris substitute Rigel, number 12.

SC Roger. Substitute Rigel for Polaris and Sirius for Navi. How about shaft and trunion remain the same?

CAPCOM Your shaft and trunions remain the same. Sirius remains on the 50 degree line just like Navi used to be. Rigel is down 1.3 degrees from your horizonal - from your N line. Over.

SC Roger, Understand.

CAPCOM Okay, and let me know if it gets to be breakfast time. I've got a newspaper to read up to you if you give a ring.

SC We've ready.

CAPCOM Okay, I've got a Haney special here for you. The Intersteller Times latest edition says the flight to the moon is occupying prime space on both paper and television. It's THE news story. The headlines of the Post says "Moon, here they come". We understand that Bill Anders will be in private conversation or communication

CAPCOM today with an old man who wears a red suit and lives at the North Pole. A suspect in the Miami kidnapping was captured late yesterday, and the 11 GIs that have been detained 5 months in Cambodia were released yesterday, and will make it home in time for Christmas.

SC Roger, with reference to the first, we saw him earlier this morning and he was heading your way.

CAPCOM Roger, we'll pass the word along. David Eisenhower and Julie Nixon were married yesterday in New York. He was described as "nervous".

SC Right.

CAPCOM The Browns took Dallas apart yesterday 31 to 20. We're sort of curious, who do you like today, Baltimore of Minnisota? Over.

SC Baltimore.

CAPCOM How many points are you giving?

SC He's not making many points at home with that comment.

CAPCOM Roger, understand. Oh, I've got another score for you when you are ready to copy. Are you ready to copy?

SC Stand by. Go Hahead.

CAPCOM Roger. Navy 14, Army 21. Would you like for me to repeat that?

SC You are very garbled, Houston, I'm unable to read. Will call you back in another year.

CAPCOM Okay. We also notice the University of Houston lost their first home basketball game in three and a half years last night. Illinois x-ed them out 97 to 84. And some really big news, the State Department announced only a few minutes ago that the Pueblo crew will be released at 9 PM tonight.

SC Sounds good. Outboard calculations indicate that Apollo 8 at 25 hours is 104 000 miles from home.

CAPCOM Yes, your prop board shows a similiar number.

SC Mighty nice view from here.

CAPCOM We're showing about 104 800 miles, and we're guessing another 8 to 10 hours on your battery charge.

SC Okay.

CAPCOM Frank, say again about the view. You were blocked I think.

SC This is a mighty nice view we have down there today. A little bit more than a half earth. Looks like Africa and the Red Sea is visible, we're not quite sure as there is quite a bit of cloud cover. But even through the hazey windows it's mighty nice.

CAPCOM How are your windows? Do you have a couple left that are real clear?

SC The rendezvous windows are good. The others are all about the same as they were when we last reported. 1 and 5 have a slight haze and a little fog on the inside.

SC Roger, understand.

PAO And at 25 hours 16 minutes into the flight - oops, here goes some more. We'll cut back.

CAPCOM Roger, just as a matter of curiosity for Bill, would you say a few words about the heaters for the cryo tanks, and also for the fans. We notice that the heaters are doing their thing normally cycling on and off, and as time goes by this cycle rate increases indicating a little bit of stratification in the tanks, and then when we've been burning the fans on every 4 hours for a couple of minutes this stirs things up and the heaters been cycling on and off again more slowly so while - until again a little bit of stratification occurs and the cycling become slightly more rapid. This of course normal, we just pointed it out as a curiosity to you. Over.

SC Roger. I haven't really been following it that close. But one thing I have noticed is when you turn the fans on you get a glitch in the quantity, which might correspond to a glitch in AC. Maybe the next time we'll look at the AC volts and see what happens.

CAPCOM Our experts say that's not the reason the the glitch. They say their stratification shakes out the capacitants (garbled)

SC I knew they would have some big deal answer for me.

CAPCOM (Garbled)

SC I'll buy that. Roger.

CAPCOM Any other information you want us to send up to you?

SC No, we're going to zap with the high gain here shortly.

CAPCOM Okay.

PAO And at 25 hours 18 minutes into the flight that apparently wraps up a very communicative period for this early Sunday morning. In the meanwhile the Control Center humorists are busy, of course, trying to come up with music appropriate under the occasion. One title suggested is "Shine On Harvest Earth". I don't know how far that will get. At 25 hours 19 minutes into the flight this is Apollo Control.

END OF TAPE

PAO And this is Apollo Control Houston at 25 hours, 41 minutes into the flight. Our velocity is down to 5162 feet per second. We are 106 270 miles from home, and here is some conversation recorded in the last 20 minute time block.

SC Houston, Apollo 8, how do you read on the high gate?

CAPCOM Reading you loud and clear Bill, how about me?

SC I'm reading you loud and clear. I ought to go ahead and dump this. You might want to listen to it in real time, to evaluate the voice.

CAPCOM Okay, we will do that, as soon as we can.

SC Give me a call when you are ready.

CAPCOM Do you want to dump it by your command, or would you like us command the dump, over.

SC Oh, you can go ahead and command whenever you are ready.

CAPCOM Okay, we are starting now, thank you.

SC I've already rewound.

CAPCOM Roger.

SC Roger, I've already rewound. There is only about 5 minutes worth on the tape in Houston.

CAPCOM Roger, understand. You promised me you would wait 3 days before you started doing this Bill.

SC It has been a long trip.

CAPCOM Apollo 8, Houston.

SC Go ahead Houston.

CAPCOM Roger, Bill, I've got your dump and the voice quality is very good. We are going to take about 20 minutes or so to get it back to Houston to play it.

SC Roger. Where are you taking it through, Houston?

CAPCOM It comes through Madrid and then Ascension, Bill.

SC Okay.

CAPCOM Apollo 8, Houston. Apollo 8, Houston, over. Apollo 8, Houston, over. Apollo 8, Houston, over. Apollo 8, this is Houston, over. Apollo 8, this is Houston, over.

SC Houston, Apollo 8, how do you read?

CAPCOM Roger, Bill we are reading you loud and clear. We had an antenna problem down here. We had an unexpected switch of antenna's switch, which probably caused your high-gain to quit. Apollo 8, Houston, over.

SC Go ahead Houston, Apollo 8.

CAPCOM Roger Jim, we lost our antenna down here. We interrupted your tape dump, so we are in the process of doing some rewinding and continuing the dump, in case Bill